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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64

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Test Report of Aggregate Impact Value

IS: 2386 Part-IV

Date: 26/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bangalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	26/07/2021

Sl. No	Particulars of Observations	Index	Test-1	Test-2
1	Total weight of the surface dry sample (passing 12.5mm and retained on 10mm sieve)	A	300.2	300.4
2	Weight of fraction passing 2.36 mm sieve after giving 15 blows	B	75.6	74.25
3	Weight of fraction passing 2.36 mm sieve after giving 15 blows	C	224.15	225.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made	A-(B+C)	0.45	0.25
5	Aggregate impact value	(B/A)x100	25.18	24.72
6	Aggregate impact value (Mean of two tests)	Percentage	24.95	

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Test Results of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29

Date: 26/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP), Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	26/07/2021
Location	

Description of materials:

GSB-V

MDD (gm/cc) =

2.180

OMC(%) =

5.20

Bulk Density of sand:

1.395

Sand retained in cone (gm)=

395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2410.5	2404.6
2	Wt of sand + cylinder before pouring (gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5285.4	5301.5
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1499.2	1483.1
5	Volume of sand in hole (V = W5/Ysand)	1074.695341	1063.15
6	Bulk density (gm/cc) (Yb= W2/v)	2.243	2.262
7	Moisture meter reading (%)	5.20	5.30
8	Dry density (g/cc) Yd = Yb / (1 + w/100)	2.146	2.154
9	Degree of compaction achieved, (%) (Yd/mdd)*100	98.46	98.81
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	98.63	

Remarks: Found to be Satisfactory.

[Signature]

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Test Results of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29

Date: 26/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	26/07/2021
Location	

Description of materials:	GSB-V		
MDD (gm/cc) =	2.180	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2412.3	2400.5
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5289.6	5298.9
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1495	1485.7
5	Volume of sand in hole (V = W5/Ysand)	1071.684588	1065.02
6	Bulk density (gm/cc) (Yb= W2/v)	2.251	2.254
7	Moisture meter reading (%)	5.25	5.15
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.154	2.147
9	Degree of compaction achieved, (%) (Yd/mdd)*100)	98.81	98.47
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	98.64	

Remarks: Found to be Satisfactory.

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Test Results of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29

Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP), Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021
Location	

Description of materials:

MDD (gm/cc) =

2.180

GSB-V

OMC(%) =

5.20

Bulk Density of sand:

1.395

Sand retained in cone (gm)=

395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2405.3	2407.2
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5283.7	5301.5
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1500.9	1483.1
5	Volume of sand in hole (V = W5/Ysand)	1075.91	1063.15
6	Bulk density (gm/cc) (Yb= W2/v)	2.236	2.264
7	Moisture meter reading (%)	5.20	5.35
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.139	2.156
9	Degree of compaction achieved, (%) (Yd/mdd)*100	98.13	98.92
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	98.53	

Remarks: Found to be Satisfactory.

[Signature]

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Test Results of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29

Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP), Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021
Location	

Description of materials:	GSB-V		
MDD (gm/cc) =	2.180	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2420.2	2402.6
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5285.2	5299.6
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1499.4	1485
5	Volume of sand in hole (V = W5/Ysand)	1074.84	1064.52
6	Bulk density (gm/cc) (Yb= W2/v)	2.252	2.257
7	Moisture meter reading (%)	5.50	5.40
8	Dry density (g/cc) Yd = Yb /(1. + w/100)	2.155	2.150
9	Degree of compaction achieved, (%) (Yd/mdd)*100)	98.84	98.60
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	98.78	

Remarks: Found to be Satisfactory.

[Signature]

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Test Results of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29

Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

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Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021
Location	

Description of materials:

MDD (gm/cc) =

2.180

GSB-V

OMC(%) =

5.20

Bulk Density of sand:

1.395

Sand retained in cone (gm)=

395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2420.2	2402.6
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5285.2	5299.6
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1499.4	1485
5	Volume of sand in hole (V = W5/Ysand)	1074.84	1064.52
6	Bulk density (gm/cc) (Yb= W2/v)	2.252	2.257
7	Moisture meter reading (%)	5.50	5.40
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.155	2.150
9	Degree of compaction achieved, (%) (Yd/mdd)*100	98.84	98.60
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	98.72	

Remarks: Found to be Satisfactory.

[Signature]



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Test Results of Gradation for GSB (Granular Sub Base)

MORT&H (Section 400, Table 400-1)

Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bangalore Mahanagara Palike (BBMP), Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/VO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)-Grading V
Date of Test	07/08/2021

Total wt of the sample (gms):

11000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per MORTH (Table 400-1)	Remarks
75	0	0	0.0	100	100	Satisfactory
53	315	315	2.9	97.1	80-100	Satisfactory
26.5	2259	2574	23.4	76.6	55-90	Satisfactory
9.5	2179	4753	43.2	56.8	35-65	Satisfactory
4.75	2251	7004	63.7	36.3	25-50	Satisfactory
2.36	1820	8824	80.2	19.8	10-20	Satisfactory
0.85	1212	10036	91.2	8.8	2-10	Satisfactory
0.425	911	10947	99.5	0.5	0-5	Satisfactory

Remarks: Satisfactory

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Test Report of Aggregate Impact Value

IS: 2386 Part-IV

Date: 07/08/2021

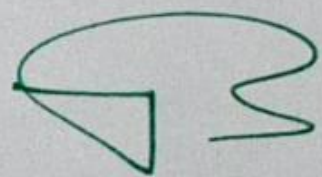
Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021

Sl. No	Particulars of Observations	Index	Test-1	Test-2
1	Total weight of the surface dry sample (passing 12.5mm and retained on 10mm sieve)	A	300.1	300.5
2	Weight of fraction passing 2.36 mm sieve after giving 15 blows	B	73.9	74
3	Weight of fraction passing 2.36 mm sieve after giving 15 blows	C	225.9	225.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made	A-(B+C)	0.3	0.6
5	Aggregate impact value	(B/A)x100	24.63	24.63
6	Aggregate impact value (Mean of two tests)	Percentage	24.63	

Remarks :

[Signature]



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Test Report of Physical Properties of Cement-53 Grade

IS: 12269-2013, IS: 4031(Part-1,2,3,4,5,6,11)-1988

Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP), Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Birla Super 53-Grade
Date of Test	09/07/2021
Environmental Condition during test	Temperature: 26°C Humidity: 72%

Sl. No	Test Results		
	Physical Properties	Result	Requirements as per IS: 12269-2013
1	Finess by dry sieving (%)	1.95	-
2	Finess by Air permeability method (m ² /kg, Min)	285.4	225 m2
3	Density, (gm/cm)	3.12	-
4	Standard Consistency (%)	29.50%	Not Specified
5	Initial Setting time	145 Minutes	Not less than 30 minutes
6	Final Setting Time	240 Minutes	Not more than 15 minutes
7	Soudness (Le Chateliers Method)	1.5 mm	Not more than 10 mm

Remarks :

[Signature]



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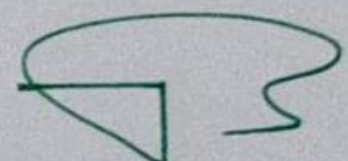
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Test Report of Physical Properties of Cement-53 Grade			
IS: 12269-2013, IS: 4031(Part-4,6)-1988		Date: 09/07/2021	
Name of Work : Comprehensive Development works in ward No. 03 Attur			
Client	Bruhat Bengaluru Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.		
Contractor	B.B Umesh (S.M.L.P Asphats)		
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20		
Source of Sample	Sample supplied by Agency		
Sample Condition	Satisfactory		
Sample Type	Birla Super 53-Grade		
Date of Test	09/07/2021		
Environmental Condition during test	Temperature:	26°C	
	Humidity:	72%	
Compressive Strength			
Sl. No	Physical Properties	Result	Requirements as per IS: 12269-2013
1	3 Days	28.5 N/mm ²	Not less than 27 N/mm ²
2	7 Days	39.0 N/mm ²	Not less than 37 N/mm ²
3	28 Days	58.5 N/mm ²	Not less than 53 N/mm ²
Remarks :			

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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012) Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Fine Aggregate
Date of Test	09/07/2021

Total wt of the sample (gms): 1000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016			
					Grading Zone-1	Grading Zone-2	Grading Zone-3	Grading Zone-4
10	0	0	0.0	100	100	100	100	100
4.75	27	27	2.7	97.3	90-100	90-100	90-100	95-100
2.36	55	82	8.2	91.8	60-95	75-100	85-100	95-100
1.18	239	321	32.1	67.9	30-70	55-90	75-100	90100
600	205	526	52.6	47.4	15-34	35-59	60-79	80-100
300	203	729	72.9	27.1	5-20	8-30	12-40	15-50
150	191	920	92.0	8.0	0-10	0-10	0-10	0-15
PAN	80	1000	100.0	0.0	-	-	-	-

Result: The Tested Sample Conforms to Grading Zone-II

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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)

Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Fine Aggregate
Date of Test	09/07/2021

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Water Absorption (%)	1.50	-
2	Specific Gravity	2.59	-
3	Material Finer tha 75 micron (%)	6.90	Uncrushed fine Aggregate Max 3% Crushed Fine Aggregate Max 15% Mixed Fine Aggregate Max 12% Manufacture Fine Aggregate Max 10%

Remarks :

[Signature]



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Test Report of Coarse Aggregate					
IS: 383-2016, IS: 2386 (Part-1, 3 & 4)-1963 (Reaffirmed-2012)				Date: 09/07/2021	
Name of Work : Comprehensive Development works in ward No. 03 Attur					
Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.				
Contractor	B.B Umesh (S.M.L.P Asphats)				
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20				
Source of Sample	Sample supplied by Agency				
Sample Condition	Satisfactory				
Sample Type	Coarse Aggregate				
Date of Test	09/07/2021				
Sieve Analysis (Particle Size Distribution) of 20mm Down Coarse Aggregate					
Total wt of the sample (gms):			5000		
IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016
40	0	0	0.0	100	100
20	245	245	4.9	95.1	90-100
10	2560	2805	56.1	43.9	20-55
4.75	2033	4838	96.8	3.2	0-10
PAN	162	5000	100.0	0.0	-
Remarks :					

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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)

Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

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Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	09/07/2021

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Flakiness Index (%)	13.20	Combined Flakiness and Elongation Index shall not exceed 40% for uncrushed and crushed aggregate
2	Elongation Index (%)	12.6	
3	Specific Gravity	2.66	-
4	Bulk Density (Loose) (Kg/l)	1.54	-
5	Bulk Density (Composed) (Kg/l)	1.58	-
6	Water Absorption (%)	0.22	-
7	Aggregate Crushing Value (%)	24.50	Max 30% for Aggregates to be used in concrete for wearing surfaces, In case aggregate Crushing Value exceeds 30% then the test for 10% fines should be conducted for aggregate to be used in concrete other than for wearing surfaces
8	Aggregate Impact Value (%)	22.80	Max 30% for aggregate to be used in concrete for wearing surfaces, 45% for aggregate to be used in concrete other than for wearing surface.

Remarks :

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Test Report of Coarse Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3 & 4)-1963 (Reaffirmed-2012)

Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	09/07/2021

Sieve Analysis (Particle Size Distribution) of 40mm Down Coarse Aggregate

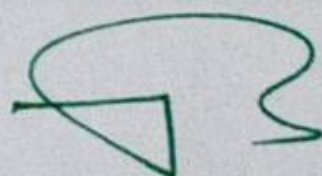
Total wt of the sample (gms):

15000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016
80	0	0	0	100	100
40	244	244	1.6	98.4	90-100
20	5432	5676	37.8	62.2	30-70
10	4332	10008	66.7	33.3	10-35
4.75	4654	14662	97.7	2.3	0-5
PAN	338	15000	100.0	0.0	-

Remarks :

[Signature]



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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)

Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	09/07/2021

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Flakiness Index (%)	12.40	Combined Flakiness and Elongation Index shall not exceed 40% for uncrushed and crushed aggregate
2	Elongation Index (%)	11.8	
3	Specific Gravity	2.68	-
4	Bulk Density (Loose) (Kg/l)	1.48	-
5	Bulk Density (Composed) (Kg/l)	1.52	-
6	Water Absorption (%)	0.22	-

Remarks :

K. Srinivas

[Signature]

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Test Result of Grain Size Analysis

(IS : 2720 Part -4)

Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Refe	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sam	Sample supplied by Agency
Sample Type	Soil-Grain Size Analysis
Date of Test	30/12/2020

Weight before wash (gm) : 1000

Weight after wash (gm) :

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative (%) of Retained (gm)	Cumulative (%) of Passing (gm)	Remarks
75 mm	0	0	0	100	
20 mm	0	0	0	100	
4.75 mm	6.7	6.7	0.67	99.33	
2 mm	119.54	126.24	12.62	87.38	
425 m	204.5	330.74	33.07	66.93	
75 m	185.54	516.28	51.63	48.37	
Pan					
TOTAL					

OBSERVATION SHEET

DESCRIPTION PARTICAL		SIEVE SIZE	PERCENTAGE	Total %
Gravel	Coarse	75 mm - 20 mm	0.00	0.67
	Fine	20 mm - 4.75 mm	0.67	
Sand	Coarse	4.75 mm - 2 mm	11.95	50.96
	Medium	2 mm - 0.425 mm	13.23	
	Fine	0.425 mm - 0.075 mm	28.25	
Silt & Clay		0.075 mm Passing	48.37	48.37

Remarks :

[Signature]



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Test Result of Atterberg Limits							
(IS : 2720, Part - 5)				Date: 30/12/2020			
Name of Work : Comprehensive Development works in ward No. 03 Attur							
Client		Bruhat Bengaluru Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.					
Contractor		B.B Umesh (S.M.L.P Asphats)					
Customer Reference		EE(PROJECT)/YNK ZONE/WO/173/2019-20					
Source of Sample		Sample supplied by Agency					
Sample Type		Soil-Atterberg Limits					
Date of Test		30/12/2020					
Determination No.		Liquid Limit				Plastic Limit	
		1	2	3	4	1	2
1	No Of Blows	18	24	28	35		
2	Container No.	S119	S120	S121	S122	S123	S124
3	Mass of Container (gm)	30.07	32.39	31.73	31.57	30.58	31.79
4	Mass of Wet Soil + Container (gm)	56.87	57.04	55.17	56.96	43.94	41.14
5	Mass of oven Dry Soil + Container (gm)	50.12	50.94	49.59	51.09	42.34	40.09
6	Mass of Water=(4-5) (gm)	6.75	6.10	5.58	5.87	1.60	1.05
7	Mass of oven dry soil =(5-3) (gm)	20.05	18.55	17.86	19.52	11.76	8.30
8	Water Content (w=6/7*100) (%)	33.67	32.88	31.24	30.07	13.61	12.65

Liquid Limit Test(Flow Curve)

Liquid Limit : Moisture Content at 25 Blows			
Liquid Limit	32.24	%	
Plastic Limit	13.13	%	
Plasticity Index	19.11	%	

Remarks :

[Signature]

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Test Result of Free Swell Index

(IS : 2720 , Part-40)

Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03
Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Type	Soil-Free Swell Index
Date of Test	30/12/2020

S.No.	Description of Test	Readings	
1	Vol. of Soil Specimen in Distilled Water in cc (Vd)	11.8	12.1
2	Vol. of Soil Specimen in Kerosene in cc (Vk)	10	10
3	Free Swell Index in Percentage $((Vd - Vk) / Vk) \times 100$	18.00	21.00
AVG (%)		19.50	

Note :

1. Take 10gm of each sample.

Remarks :

[Signature]

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Formate No: NSPR/QC/F 03

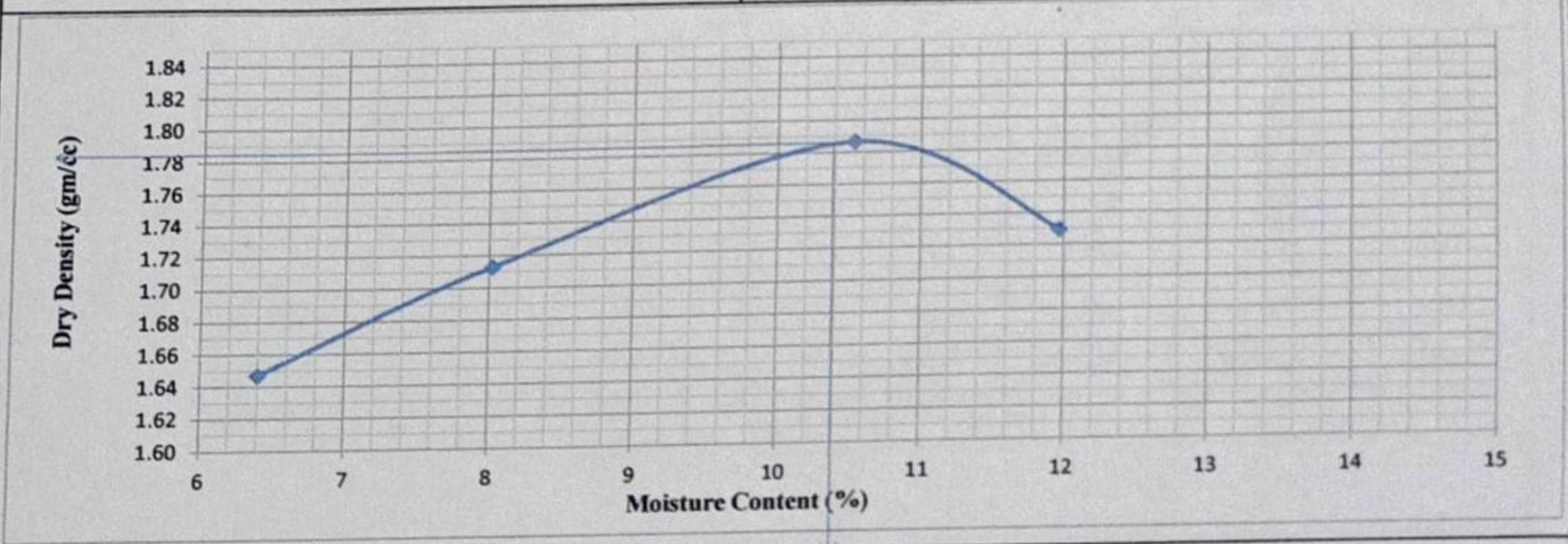
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Region no :	Wt. Sample Taken : 5 Kg				
Determination No	1	2	3	4	
Percentage of Water taken(%)	6	8	10	12	
Mould No.	3	3	3	3	
Volume of mould (V) CC	2250.63	2250.63	2250.63	2250.63	
Mass of mould (M1) gm	5740	5740	5740	5740	
Mass of mould+Compacted soil (M2) gm	9684	9904	10184	10098	
Mass of Compacted soil(M3=M2-M1) gm	3944	4164	4444	4358	
Wet Density of soil (γ_w)=M3/V gm/cc	1.752	1.850	1.975	1.936	
Container No.	S125	S126	S127	S128	
Mass of Container (gm)	32.72	30.89	32.23	30.30	
Mass of Wet Soil+Container (gm)	105.23	109.55	111.24	120.21	
Mass of Oven Dry Soil + Container (gm)	100.87	103.71	103.71	110.6	
Mass of Water (gm)	4.36	5.84	7.53	9.61	
Weight of dry soil (gm)	68.15	72.82	71.48	80.30	
Water Content (%)	6.40	8.02	10.53	11.97	
Dry Density of Soil (γ_d)= $\gamma_w/(1+w\%)$ gm/cc	1.647	1.713	1.786	1.729	



Remarks :

	From Graph		
	Maximum Dry Density (MDD)	1.785 gm/cc	
	Optimum Moisture Content (OMC)	10.40 %	

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